

## Chapter Seven: Future System Performance and Recommendations

### INTRODUCTION

The prior chapter of the Vermont Airport System Plan provided an overview of the current performance of Vermont's public-use airports. Current system performance was evaluated and determined using applicable facility and service objectives, system performance measures and study benchmarks. This chapter of the System Plan sets the course for future system performance by setting targets for how each airport in the system and the system as a whole should ideally function in the future to meet the State's air transportation and economic needs. These target performance objectives provide the basis for system recommendations which are also documented in this chapter.

Stratification of the airports into functional roles within the Vermont Airport System, identified in Chapter Three, provides a baseline for evaluating the existing Airport System. Performance measures, with specific benchmarks for each measure, are used to evaluate the system to determine its current performance. This evaluation



provides an indication of where the current airport system is adequate to meet the State's near and long-term aviation needs, identifies specific airport or system deficiencies, and helps to establish surpluses or duplications within the system that can be addressed in the future. This evaluation provides the foundation for subsequent recommendations for the Vermont Airport System, as well as for individual study airports.

This chapter addresses future system performance and recommendations as it relates to:

- Accessibility
- Development
- Safety & Security

## TARGET PERFORMANCE MEASURE: ACCESSIBILITY

### BENCHMARK: PERCENT OF VERMONT'S POPULATION AND LAND AREA WITHIN 60-MINUTES OF AN AIRPORT WITH COMMERCIAL SERVICE

It is generally desirable for most, if not all, of a state's population to be within a 60-minute drive of a commercial service airport. It has been targeted for the Vermont Airport System Plan that between 90 and 95 percent of Vermont's population should be located within a 60-minute drive time of commercial air service. Scheduled commercial airline service within Vermont is provided at Burlington International and Rutland State. It is important to note that commercial airline service at Rutland State is supported by federal operating subsidies through the Essential Air Service (EAS) program. Access for Vermonters provided by the two commercial service facilities is supplemented by service at out-of-state commercial service airports. It is estimated that 93 percent of Vermont's population has access to commercial air service within a 60-minute drive time, while 75 percent of the land area within the State falls within this drive time. This includes coverage by three out-of-state commercial service airports serving the communities of:

- Albany, New York
- Lebanon, New Hampshire
- Plattsburgh, New York

The existing coverage provided by Vermont's two commercial service airports and the three out-of-state airports that are within reasonable access to Vermonters is considered to be adequate. The future of access to commercial service airports would likely change only if Rutland State loses its EAS subsidy and airline service is no longer subsidized. Without subsidization, Rutland might lose its commercial airline



service, reducing the commercial service coverage provided to only 83 percent of Vermont's population, which is below the target set for this benchmark.

The recommendation for this benchmark is to support continuation of the EAS program to ensure commercial airline service is provided at Rutland State Airport. The EAS program continues to be at risk of being reduced or eliminated at the national level due to funding issues and support from Vermont is needed to show the importance of this program to the State's accessibility to commercial airline service.

**BENCHMARK: PERCENT OF VERMONT'S POPULATION WITHIN 30-MINUTES OF AN AIRPORT WITH A 5,000-FOOT LONG RUNWAY**

As mentioned in previous chapters, the typical minimum runway length needed to accommodate a high percentage of business jet traffic in Vermont is approximately 5,000 feet. This minimum length is a recommended objective for the Regional Service airports, although National Service airports should also exceed this objective since they are recommended to have a minimum of 5,500 feet of paved runway length. Currently, only 62 percent of the State's population is within a 30-minute drive time of an airport with a runway length of 5,000 feet or greater. It is important to note when establishing targets for this benchmark that some airports currently assigned to the Regional Service role do not meet the 5,000-foot long runway length objective. It is also worth noting that to address other target objectives for the system that additional airports may be assigned to either the National or Regional role. It is recommended as a future target that between 70 and 75 percent of the State's population should be within a 30-minute drive time of an airport with a runway length of 5,000 feet or greater. If all of the airports currently placed into the National and Regional Service role met their associated runway length objectives, approximately 72 percent of Vermont's population would be within this coverage. All of the airports initially designated in the National Service role have at least 5,000 feet of paved runway. **Table 7-1** depicts which airports do not currently meet the 5,000-foot long runway length objective in the Regional Service role and their associated deficiencies.

Lebanon Municipal Airport in New Hampshire was ruled to meet the 5,000-foot long runway requirement. Using GIS analysis it was noted that approximately 5 percent of Vermont's population was located within a 30-minute drive time of Lebanon. This increases coverage to 67 percent of Vermont's population that is within a 30-minute drive of an airport with a runway length of at least 5,000 feet.



Table 7-1  
Regional Airports With a 5,000' or Less Runway Length

Airport Name	Associated City	Current Length	Objective Length	Length Needed to Meet 5,000' Objective
Regional Service				
Morrisville-Stowe State	Morrisville	3,701'	5,000'	1,299'
William H. Morse State <sup>1</sup>	Bennington	3,704'		1,296'

Source: Wilbur Smith Associates

In order to meet the 70 to 75 percent target for population within 30-minutes of a 5,000-foot or longer runway, it is recommended that runway extensions at Morrisville-Stowe State and William H. Morse State Airport be considered. It is important to note that prior to construction of runway extensions, each airport would be required to justify the need for the extension, as well as conduct required environmental documentation. The justification and environmental process may result in a recommendation for a different runway length.

The need for either of these airports to serve a National role within the Vermont Airport System is examined in a subsequent section. If either of these airports is identified as a candidate for a National role, a minimum runway length of 5,500 feet would be necessary to meet the objectives. It should be noted that William H. Morse State is currently pursuing a runway extension to give the airport 4,000 feet of paved runway in the near future, with the possibility of extending the runway beyond that length in the five to 10-year timeframe.

If William H. Morse State was successful in obtaining at least 5,000 feet of runway, the target for this benchmark would be met.

**BENCHMARK: PERCENT OF VERMONT'S POPULATION WITHIN 30-MINUTES OF AN AIRPORT WITH A 5,000-FOOT LONG RUNWAY HAVING A PRECISION APPROACH**

Only two airports in Vermont currently have a runway that is 5,000 feet or longer and also have a precision approach. This provides 44 percent of Vermont's population access 30-minute access to an airport with a 5,000-foot long runway that has a precision approach. The Vermont Airport System Plan has set a future target that at least 50 percent of Vermont's population be located within the 30-minute drive time coverage of airports with a 5,000-foot long runway and a precision approach.

<sup>1</sup> William H. Morse State is recommended in a subsequent section of this chapter to be upgraded to a National Service airport. As a result, in later analysis the recommended runway length for this airport will be 5,500', which is the objective for the National Service role.





It should be noted that Lebanon Municipal Airport meets these criteria, and provides coverage to an additional 5 percent of Vermont's population, increasing the coverage to 49 percent.

The National Service role airports were recommended to have a minimum runway length of 5,500 feet and a precision approach. All three airports in this role currently have at least 5,000 feet of paved runway, but only Burlington International and Edward F. Knapp Airport currently have precision approaches. If Rutland State Airport met the precision approach objective associated with the National Service role, 60 percent of the State's population would be within the 30-minute drive time coverage of these airports, which would satisfy the future target.

The State has been pursuing development of a precision-type approach at Rutland State Airport for several years. There are currently partial funds set aside for the installation of a MALSR approach lighting system. Once installed, this will provide one more step towards providing precision instrument capabilities at Rutland State Airport.

## **BENCHMARK: PERCENT OF VERMONT'S POPULATION AND LAND AREA WITHIN 30-MINUTES OF AIRPORTS IN EACH ROLE CATEGORY**

Current roles for all public-use airports in Vermont were determined based on a series of criteria and factors discussed in Chapter Three. When current roles were identified, it was understood that the future roles for some system airports could be changed based on the identified needs of the future system. Initially, airports were assigned to the National, Regional, Local, and Specialty Service roles based on existing conditions. Chapter Six then analyzed the amount of coverage each airport service role provided in regards to the amount of population and land area within a 30-minute drive time. The purpose of this analysis is to determine if the existing coverage provided by each role is adequate for Vermont's Airport System to meet future needs.

Not every airport role category is intended to provide the same amount of coverage, as the types of users and amount of demand for each type of airport role differs. Accessibility targets have been developed for the airport roles based on evaluation of Vermont's future transportation and economic needs. These accessibility targets considered how other state airport systems have been developed and if Vermont's Airport System would provide comparable service to its residents and visitors.

As mentioned in the previous chapter, airports in a higher role are considered to meet the facility and service objectives for a lower role. For example, National Service airports are considered to also serve as Regional and Local airports since the facilities and services recommended for National Service airports are beyond those recommended for the other categories. As a result, the amount of coverage provided



by each role compounds from the National Service level down to the Specialty Service airports, with each category serving a higher percentage of the population. It is recommended that airports in the following roles serve the following levels of population within a 30-minute drive time:

- National Service Airports – 60 to 65 percent of the population
- Regional Service Airports – 70 to 75 percent of the population
- Local Service Airports – 85 to 90 percent of the population
- Specialty Service Airports – No specific target

It is important to note that the Specialty Service Airports serve a unique role in Vermont's Airport System. These airports provide service to activities such as recreational, sport, balloon, and other specialties that typically prefer to be located away from larger aircraft. These types of specialty activities usually assemble at smaller airports that cater to their needs and specifically to one type of activity. No targets were set for airports to serve these types of activities since they are specialized.

## National Service

National Service airports are targeted to be within a 30-minute drive time of 60 to 65 percent of Vermont's population. These airports provide the highest level of services and facilities and accommodate the most demanding aircraft. The three airports that were originally placed in the National Service role only provide coverage to 55 percent of the State's population. The current coverage has been determined not to be adequate to meet future needs.

Out-of-state airports located within a 30-minute drive time that have facilities and services that meet the objectives set forth for the National Service role were examined to see if any additional coverage is provided to Vermonters. Lebanon Municipal Airport, located in New Hampshire east of Rutland, was the only airport noted to have facilities and services that meet the objectives of a National Service airport. Lebanon Municipal Airport provides coverage to users in an area of Vermont where coverage for this role is currently not being provided by the three National Service airports. Using GIS, it is estimated that approximately 5 percent of Vermont's population is within a 30-minute drive time of Lebanon Municipal Airport. This additional out-of-state coverage aids in helping the State meet the minimum 60 percent population coverage for this objective. Even with the additional National Service role coverage provided by Lebanon Municipal, it is still important that consideration of additional coverage in southern Vermont be undertaken.

Airports in the Regional role were examined to determine which airports, if upgraded to National Service, would provide the most additional access to the State's



population and which airports were close to meeting the existing facility and service objectives for National Service airports. It was determined using GIS analysis that by moving William H. Morse State from a Regional Service to a National Service airport and including coverage provided by Lebanon Municipal in New Hampshire, approximately 67 percent of Vermont's population would be within a 30-minute drive time of National Service airports. No out-of-state public-use airports within the vicinity of William H. Morse State have runway lengths close to 5,500 feet, which is an objective for the National Service airports. By upgrading William H. Morse State's role, the accessibility target of 65 percent by National Service airports can be met. Although the coverage provided by Lebanon Municipal Airport may be enough to meet the minimum benchmark, it was determined that the coverage provided by upgrading William H. Morse State is in an area of significant population that is only served by one other privately-owned public-use airport, Mount Snow, which is categorized as a Specialty Service airport. In order for William H. Morse State to effectively serve as a National Service airport, the facility and service objectives for that role should also be met. The ability of William H. Morse State Airport to meet the facility and service objectives will be addressed in a subsequent section.

## Regional Service

Assuming William H. Morse State Airport is included as a National Service airport, only two airports would remain in the Regional Service role as originally stratified in Chapter Three. It is recommended that between 70 and 75 percent of Vermont's population be within a 30-minute drive time of a Regional Service airport. As mentioned in earlier chapters, higher tier airports, such as those in the National Service role, are considered to meet the minimum objectives of a lower role such as Regional Service. When considering the coverage provided by the Regional and National airports, approximately 75 percent of Vermont's population is within the coverage provided by the airports in these categories, which is considered to meet the target for Regional Service airports. No airports are recommended to be advanced to the Regional Service role.

## Local Service

It is recommended that between 85 and 90 percent of the State's population be within a 30-minute drive time of a Local Service airport. The coverage of Vermont's population provided by the Local Service airports exclusively is only 27 percent. However, combined with that of the National and Regional Service airports, approximately 92 percent of Vermont's population is within a half an hour by car of a Vermont public-use airport. As a result, there currently is sufficient coverage that meets the established target.



## Specialty Service

There is no specific target for the amount of population that should be within a certain drive time from a Specialty Service airport. National, Regional, and Local Service airports provide coverage to nearly 90 percent of the State's population. When Specialty Service airports are added, approximately 95 percent of Vermont's population is within a 30-minute drive of some type of public-use airport. While it is desirable for the entire population to be within 30 minutes of a public-use airport, this is considered to be sufficient coverage. As a result, no new aviation facilities are proposed for the State.

## TARGET PERFORMANCE MEASURE: DEVELOPMENT

Development of Vermont's aviation system should seek to preserve and enhance existing airport infrastructure, as appropriate, to maintain the State's access to the national air transportation system. A good airport system should be adequately developed and planned, and provide airside and landside infrastructure and facilities to meet both current and future demand. While landside facilities are typically addressed in an airport master plan, the Vermont Airport System Plan analyzed selected landside facilities to provide a general overview of the system's ability to provide adequate capacity to meet current and future demand.

## BENCHMARK: PERCENT OF VERMONT'S POPULATION AND LAND AREA EXCLUSIVELY SERVED (WITHIN 30 MINUTES) OF A PRIVATELY-OWNED AIRPORT

To ensure the longevity and future enhancements of Vermont's public-use airports, it is desirable that many of the State's public-use airports be publicly owned. Vermont has five public-use airports that are privately owned, which makes them ineligible for FAA Airport Improvement Program (AIP) funds. In addition, these airports could close at any time, taking away air accessibility to the State's population served by these airports.

It has been targeted that no more than 5 percent of Vermont's population be exclusively served by a privately owned airport. Currently, 8 percent of the population is within a 30-minute drive time of only a privately owned public-use airport. Out-of-state public-use airports, including Lebanon Municipal and Dean Memorial, both of which are in New Hampshire and publicly-owned, do provide some overlapping coverage with that of Post Mills in the eastern part of the State. This out-of-state coverage helps to reduce the overall dependency that Vermonters have on privately-owned airports in the State. It is recommended that the coverage exclusively provided by privately-owned airports not increase in the future, and when and if possible, that the level of population served exclusively by these airports be



decreased. While Vermont does not desire to own any additional airports, the State is concerned with losing additional airports to non-aviation use and would work closely to encourage the long-term viability of the privately-owned airports.

## **BENCHMARK: PERCENT OF SYSTEM AIRPORTS MEETING MINIMUM FACILITY AND SERVICE OBJECTIVES**

The previous chapter of the Vermont Airport System Plan analyzed the ability of the system to meet minimum facility and service objectives established for each airport role. This analysis examined each airport's ability to meet current demand for airside facilities such as runway length, taxiways, and NAVAIDs, as well as landside facilities including covered storage, automobile parking, and the terminal/administration building based on their role's facility and service objectives. In this section, the airport system is analyzed for its ability to meet future demand for the same airside and landside facilities and services.

Since airports in the system serve different roles, their need to provide facilities in each of these categories also varies. An objective has been established to have all system airports be 100 percent compliant with the current and future facility and service objectives for their respective system roles. It should be noted that this is only an objective, and that some airports may not have the ability to fully meet the objectives due to constraints that are both physical and economical. However, it is recommended that all airports strive to meet these objectives when and if possible.

## **FUTURE ARC ANALYSIS**

Each airport's ability to meet its applicable FAA design standards is primarily a function of the master planning process, rather than the system planning process. To assess the performance of the Vermont Airport System Plan, it was nevertheless important to evaluate the ability of the airports and the system to meet basic design standards. A target of 100 percent has been set for all system airports to meet their Airport Reference Code (ARC) objective. As discussed in Chapter Six, only one airport, Edward F. Knapp State, did not meet the current objective for the National Service role. With the recommended upgrade of William H. Morse State to a National Service airport, its current ARC also does not meet the objective for this role. This decreases the overall current system compliance to 88 percent. The following airports are not currently meeting their future ARC objective:

- **National Service Airports**
  - Edward F. Knapp State
  - William H. Morse State



Table 7-2 provides information by airport role on which facilities fall short of their ARC objective.

**Table 7-2**  
**Future ARC Objective**

Airport Name	Associated City	Current ARC	ARC Objective
<b>National Service</b>			
Edward F. Knapp State	Barre/Montpelier	B-II	C-II
William H. Morse State	Bennington	B-II	

Source: Wilbur Smith Associates

It is recommended that these airports strive to meet the requirements associated with an ARC of C-II. This would require the airports to meet all the runway/taxiway separations and secure the associated safety areas in and around the runway system in order to meet the standards of the C-II ARC.

## FUTURE RUNWAY LENGTH ANALYSIS

The target performance set for this benchmark is to have 100 percent of all system airports meet their respective primary runway length objective. Currently, 30 percent of the system airports comply with the primary runway length benchmark. It should be noted that the objective for Specialty Service airports only recommends that airports maintain their existing facilities. The original runway length objectives are suitable for future performance and are not recommended to change. It should be noted that any runway extension would require justification, proper environmental documentation, and securing of all associated safety areas in order to be eligible for FAA funding. As a result, airports may not be able to implement some of the recommendations in this section due to environmental and/or man-made constraints that limit the development of airport runways.

Airports that do not currently meet their minimum runway length objective for their role are:

- **National Service Airports – 5,500'**
  - Edward F. Knapp State
  - Rutland State
  - William H. Morse State
- **Regional Service Airports – 5,000 feet**
  - Morrisville-Stowe State
- **Local Service Airports – 4,000 feet**
  - Caledonia County State
  - Franklin County State



- Middlebury State

Table 7-3 lists the primary runway length deficiencies for the system.

**Table 7-3**  
**Future Runway Length Objective Analysis**

Airport Name	Associated City	Current Length	Length Objective	Deficiency
National Service				
Edward F. Knapp State	Barre/Montpelier	5,002'	5,500'	Deficient by 498'
Rutland State	Rutland	5,000'		Deficient by 500'
William H. Morse State <sup>2</sup>	Bennington	3,704'		Deficient by 1,796'
Regional Service				
Morrisville-Stowe State	Morrisville	3,701'	5,000'	Deficient by 1,299'
Local Service				
Caledonia County State	Lyndonville	3,300'	4,000'	Deficient by 700'
Franklin County State	Highgate	3,000'		Deficient by 1,000'
Middlebury State	Middlebury	2,500'		Deficient by 1,500'

Source: Wilbur Smith Associates

## FUTURE RUNWAY WIDTH ANALYSIS

The target performance set for this benchmark is to have 100 percent of all system airports meet their respective runway width objectives. Currently, 62 percent of all public-use airports currently comply with their runway width objectives. With the movement of William H. Morse to the National Service role, the airport falls short of meeting its new role's recommended runway width objective. As a result, the current system compliance falls to 54 percent. Airports that do not currently meet the primary runway width objective for the System Plan for their role are:

- **National Service Airports – 100 feet**
  - William H. Morse State
- **Local Service Airports – 75 feet**
  - Caledonia County State
  - Franklin County State
  - Middlebury State
- **Specialty Service Airports – 60 feet for NPIAS airports**
  - Fair Haven Municipal
  - Warren-Sugarbush

<sup>2</sup> William H. Morse State was recommended in Table 7-1 to have 5,000' of runway. As mentioned earlier, since it has been recommended that the Airport upgrade its facilities to those of the National Service role, a minimum of 5,500' of runway should be the Airport's ultimate objective.



Table 7-4 shows the airports that do not meet their runway width objectives and their deficiencies.

**Table 7-4**  
**Future Runway Width Objective Analysis**

Airport Name	Associated City	Current Width	Width Objective	Deficiency
<b>National Service</b>				
William H. Morse State	Bennington	75'	100'	Deficient by 25'
<b>Local Service</b>				
Caledonia County State	Lyndonville	60'	75'	Deficient by 15'
Franklin County State	Highgate	60'		Deficient by 15'
Middlebury State	Middlebury	50'		Deficient by 25'
<b>Specialty Service</b>				
Fair Haven Municipal	Fair Haven	20'	60'	Deficient by 40'
Warren-Sugarbush	Warren	30'		Deficient by 30'

Source: Wilbur Smith Associates

## FUTURE RUNWAY STRENGTH ANALYSIS

Eighty percent of Vermont's system airports currently meet their runway strength objective. The recommended strengths for each role have been determined to be sufficient for future activity. It is recommended that all airports in the system meet the identified strength benchmark for their role. The following airports have runways that are deficient of their role's strength objective:

- **National Service Airports – 60,000 pounds**
  - William H. Morse State
- **Regional Service Airports – 30,000 pounds**
  - Morrisville-Stowe State

Table 7-5 shows the runway strength deficiencies at the airports that do not meet their recommended objective. Morrisville-Stowe State should consider a runway overlay in order to increase the strength of the runway by 5,000 pounds. Consideration of a complete reconstruction of the runway at William H. Morse State be undertaken in order to increase its strength by more than 47,000 pounds. It should be noted that the current strength of each airport's runway is sufficient for their existing users. However, since the runway length objectives for William H. Morse State and Morrisville-Stowe State are 5,500' and 5,000', respectively, strengthening projects would only be required in order to support the larger aircraft that could operate at the airports as a result of the runway extensions.





**Table 7-5**  
**Future Runway Strength Objective Analysis**

Airport Name	Associated City	Current Strength	Strength Objective	Deficiency
<b>National Service</b>				
William H. Morse State	Bennington	12,500 lbs.	60,000 lbs.	47,500 lbs. /Runway Reconstruction
<b>Regional Service</b>				
Morrisville-Stowe State	Morrisville	25,000 lbs.	30,000 lbs.	5,000 lbs. /Runway Overlay

Source: Wilbur Smith Associates

## **FUTURE TAXIWAY ANALYSIS**

Fifty percent of the public-use airports in Vermont currently meet the study's taxiway objectives. In order to meet the established 100 percent target for this benchmark, all airports should meet the taxiway type objectives for their respective roles. The airports in each of the following three service roles do not comply with their taxiway type objectives:

- **National Service Airports – Full Parallel Taxiway**
  - Edward F. Knapp
  - Rutland State
  - William H. Morse State
- **Regional Service Airports – Full Parallel Taxiway**
  - Hartness State
  - Morrisville-Stowe State
- **Specialty Service Airports – Connectors or Turnarounds, Partial Parallel Desired for Paved Runways**
  - Mount Snow

Airports that do not currently meet the future taxiway objective for their respective role are listed in **Table 7-6**.



**Table 7-6**  
**Future Taxiway Objective Analysis**

Airport Name	Associated City	Current Taxiway	Taxiway Objective
<b>National Service</b>			
Edward F. Knapp State	Barre/Montpelier	Partial Parallel	Extend to a Full Parallel on RWY 17-35
Rutland State	Rutland	Partial Parallel, Connectors	Construct Full Parallel on RWY 1-19
William H. Morse State	Bennington	Connectors	Construct Full Parallel on RWY 13-31
<b>Regional Service</b>			
Hartness State	Springfield	Connectors, Turnarounds	Construct Full Parallel on RWY 5-23
Morrisville-Stowe State	Morrisville	Connectors	Construct Full Parallel on RWY 1-19
<b>Specialty Service</b>			
Mount Snow	West Dover	Connectors	Construct Turnarounds on RWY 1-19

Source: Wilbur Smith Associates

## FUTURE APPROACH ANALYSIS

As mentioned in Chapter Six, airports were evaluated based on the type of the most demanding approach available or currently published to the airport. The following airports do not meet the objectives that were developed for each of the roles:

- **National Service Airports – Precision Approach (Ceiling Minimum of 200 feet or less and Visibility Minimum of ½ mile or less)**
  - Edward F. Knapp State
  - Rutland State
  - William H. Morse State
- **Regional Service Airports – Non-Precision Approach (Ceiling Minimum of 400 feet or less and Visibility Minimum of 1 mile or less)**
  - Hartness State
  - Morrisville-Stowe State
- **Local Service Airports – Non-Precision Approach (Ceiling Minimum of 1,000 feet or less and Visibility Minimum of 3 miles or less)**
  - Caledonia County State
  - Franklin County State
  - Middlebury State

**Table 7-7** depicts the current approach minima at airports that do not meet their role's objective in addition to the deficiencies in ceiling height and visibility minimums.



**Table 7-7**  
**Future Approach Objective Analysis**

Airport Name	Associated City	Current Approach	Approach Objective	Deficiency
National Service				
Edward F. Knapp State	Barre/Montpelier	Precision 300'/1 ¼ Mile	Precision 200'/ <sup>1</sup> / <sub>2</sub> Mile	100'/ <sup>3</sup> / <sub>4</sub> Mile
Rutland State	Rutland	Non-Precision 1,413'/1 ¼ Mile		1,213'/ <sup>3</sup> / <sub>4</sub> Mile
William H. Morse State	Bennington	Non-Precision 1,222'/1 ¼ Mile		1,022'/ <sup>3</sup> / <sub>4</sub> Mile
Regional Service				
Hartness State	Springfield	Non-Precision 985'/1 ¼ Mile	Non-Precision 400'/1 Mile	585'/ <sup>1</sup> / <sub>4</sub> Mile
Morrisville-Stowe State	Morrisville	Non-Precision 828'/1 Mile		428'/---
Local Service				
Caledonia County State	Lyndonville	Non-Precision 555'/ 1 Mile	Non-Precision 1,000'/3 Miles	445'/---
Franklin County State	Highgate	Non-Precision 632'/1 Mile		368'/---
Middlebury State	Middlebury	Visual		1,000'/3 Miles

Source: Wilbur Smith Associates

Although it is desirable that the 100 percent target be met for all facility and service objectives, factors such as terrain and flight path obstructions limit the ability of certain airports to meet their recommended approach objectives. However, it is desirable that at a minimum, airports meet their recommended type of instrument approach, and not necessarily their associated ceiling height and visibility minimums. Rutland State and William H. Morse State in the National Service role do not have precision approaches, and therefore do not currently meet this objective. Middlebury State, in the Local Service role, is the only other airport that does not meet its type of approach objective.

Rutland State has plans to install a Medium Intensity Approach Lighting System Runway Alignment Indicator Lights (MALSR) in the near future. Once the MASLR is installed, the approach minimums may be reduced, and will help bring the airport one step closer to securing a precision approach.

Instrument Landing Systems (ILS) have traditionally provided precision instrument approach capabilities at airports. These land-based facilities however are often subject to interference with terrain, which make them either costly to install and maintain or prohibits their use altogether. The FAA has developed a plan for an extensive national airspace (NAS) modernization program with Global Positioning System (GPS) as the core technology. GPS is a space-based satellite navigation system free from terrain interference. These systems are significantly less costly to maintain than conventional land-based facilities. GPS is the basis of Wide Area Augmentation System (WAAS), an Approach Procedure with Vertical Guidance (APV). This relatively new category of instrument approaches includes the WAAS approach technology, Lateral Precision with Vertical Guidance (LPV). LPV has been



operational since 2003, and currently provides precision approach accuracy with Category I descent minimums (200 feet above the ground's surface).

Although the LPV approaches are not true precision approaches, they provide near precision capabilities when landing an aircraft. The only downside to this system is that aircraft will be required to have the appropriate equipment installed to utilize the approach, which can be costly to the pilot to install.

The FAA is also developing the Global Navigation Satellite System Landing System (GLS). GLS, which is programmed to come online by 2013, will provide Category II and III approach minimums to more runways in the U.S. than are currently available from traditional ILS technology.

The next section will note which airports are deficient of the NAVAIDs necessary to meet their recommended type of approach. For those airports in the National Service role that do not have a precision approach, a GPS-based approach with precision-like capabilities should be sought.

## FUTURE NAVAID ANALYSIS

Each airport's ability to meet the NAVAIDs objective was discussed in Chapter Six. The System Plan's objective for NAVAIDs is for all airports to have 100 percent future compliance with their role's objectives based on the FAA's criteria. Currently, only 50 percent of the airports in Vermont meet their NAVAID objectives. With the movement of William H. Morse State to a National Service airport, the current system compliance falls to 40 percent due to the lack of a precision approach at that airport. Those airports that do not currently meet their objectives are listed below in **Table 7-8**, in addition to the deficiency for the airport to meet its benchmark.

**Table 7-8**  
**Future Airport NAVAID Objective Analysis**

Airport Name	Associated City	NAVAID Objective Needs
<b>National Service</b>		
Edward F. Knapp State	Barre/Montpelier	Lighted Wind Cone
Rutland State	Rutland	Precision GPS, ALS
William H. Morse State	Bennington	Precision GPS, ALS
<b>Regional Service</b>		
Hartness State	Springfield	Lighted Wind Cone
<b>Local Service</b>		
Caledonia County State	Lyndonville	Rotating Beacon, Lighted Wind Cone
Middlebury State	Middlebury	VGSIs, Rotating Beacon, Lighted Wind Cone

Source: Wilbur Smith Associates

William H. Morse State has received an earmark for a Transponder Landing System (TLS) that is awaiting FAA approval and installation. TLS has been certified as a Category I precision landing aid, and can provide a ceiling minima as low as 200 feet and a visibility minima as low as ½ mile. If the TLS is approved by the FAA and installed at William H. Morse State, the airport would be considered to meet their NAVAID and approach objectives. However, if the potential for the installation of a precision GPS based system is available, this should also be considered by VTrans.

## FUTURE LIGHTING ANALYSIS

Runway and taxiway edge lights provide guidance and visibility to pilots during periods of darkness or restricted visibility conditions. Sixty percent of the airports in Vermont were found to currently meet the study's lighting objectives. William H. Morse State does not meet the lighting objective for National Service airports which drops the current system compliance to only 50 percent. In order to meet the future target of 100 percent for this development benchmark, all National, Regional, and Local Service airports should meet their role's lighting objectives. Airports not currently meeting their runway and taxiway lighting objectives are:

- **National Service Airports – HIRL/MITL**
  - Edward F. Knapp State
  - Rutland State
  - William H. Morse State
- **Local Service Airports – MIRL/MITL**
  - Caledonia County State
  - Middlebury State

Table 7-9 indicates which airports currently do not meet their respective lighting objectives. It should be noted that in order to “meet” this benchmark, potential runway and taxiway lighting projects are listed.

**Table 7-9**  
**Future Lighting Objective Analysis**

Airport Name	Associated City	Current Lighting	Lighting Objective
<b>National Service</b>			
Edward F. Knapp State	Barre/Montpelier	MIRL	Upgrade to HIRL, Install MITL
Rutland State	Rutland	MIRL	Upgrade to HIRL, Install MITL
William H. Morse State	Bennington	MIRL	Upgrade to HIRL, Install MITL
<b>Local Service</b>			
Caledonia County State	Lyndonville	LIRL	Upgrade to MIRL
Middlebury State	Middlebury	None	Install MIRL

Source: Wilbur Smith Associates

## FUTURE WEATHER REPORTING ANALYSIS

On-site weather reporting equipment at an airport can complement a facility's precision or non-precision approach capabilities, as well as promote an increased safety margin during periods of inclement or changing weather. For this benchmark, all airport roles except Specialty Service included an objective to have automated weather reporting, either through an automated surface observing system (ASOS) or an automated weather observing system (AWOS). All airports are recommended to have a Pilot Weather Briefing System (PWBS) in operation.

**Table 7-10** indicates which airports, by role, do not meet the weather reporting objectives and potential weather reporting projects in order to meet the future target benchmark of 100 percent for the system.

**Table 7-10**  
**Future Weather Reporting Objective Analysis**

Airport Name	Associated City	Current Weather Reporting	Weather Reporting Objective
<b>Local Service</b>			
Middlebury State	Middlebury	PWBS	Install ASOS or AWOS
<b>Specialty Service</b>			
Basin Harbor	Vergennes	None	Install PWBS
Fair Haven Municipal	Fair Haven	None	Install PWBS
John H. Boylan State	Island Pond	None	Install PWBS
Mount Snow	West Dover	None	Install PWBS
Post Mills	Post Mills	None	Install PWBS
Shelburne	Shelburne	None	Install PWBS
Warren-Sugarbush	Warren	None	Install PWBS

Source: Wilbur Smith Associates

## FUTURE GROUND COMMUNICATIONS ANALYSIS

Airports with a phone or either a ground communications outlet (GCO) or a remote communications outlet (RCO) provide a valuable service to pilots. Currently, 65 percent of all system airports comply with their recommended communications objective. The following list shows which service roles have airports that do not comply with the objectives that were established to provide sufficient ground communications:

- **Regional Service Airports – Public phone, GCO or RCO**
  - Hartness State
- **Specialty Service Airports – Public phone, GCO or RCO as needed**
  - Basin Harbor
  - Fair Haven Municipal



- John H. Boylan State
- Mount Snow
- Post Mills

**Table 7-11** shows the recommended ground communications objectives and needs at system airports in order to meet the future 100 percent target benchmark for this objective.

**Table 7-11**  
**Future Ground Communications Objective Analysis**

Airport Name	Associated City	Current Ground Communications	Ground Communications Objectives
<b>Regional Service</b>			
Hartness State	Springfield	Public Phone	Install GCO or RCO
<b>Specialty Service</b>			
Basin Harbor	Vergennes	None	Install Public Phone
Fair Haven Municipal	Fair Haven	None	Install Public Phone
John H. Boylan State	Island Pond	None	Install Public Phone
Mount Snow	West Dover	None	Install Public Phone
Post Mills	Post Mills	None	Install Public Phone

Source: Wilbur Smith Associates

## FUTURE COVERED STORAGE

Only 30 percent of all system airports currently meet the Vermont Airport System Plan's aircraft storage objective. As recommended in Chapter Five, the following hangar storage objectives were established for the four airport roles, in addition to noting those airports that do not currently meet that benchmark:

- **National Service Airports – 70% of based aircraft**
  - Edward F. Knapp State
  - William H. Morse State
- **Regional Service Airports – 70% of based aircraft**
  - Hartness State
  - Morrisville-Stowe State
- **Local Service Airports – 60% of based aircraft**
  - Caledonia County State
  - Franklin County State
  - Middlebury State
  - Newport State

It was noted in the previous chapter that if additional hangars are not provided between now and the end of the 20-year planning period, the system-wide compliance rating for the covered storage objective could decrease. An analysis was conducted to determine if airports that were currently meeting their objective would be able to accommodate the additional demand in the future by the increase in forecasted aircraft as determined in Chapter Four. Only Burlington International and Rutland State, which currently have enough hangar space, were found to also be able to accommodate future demand. The current aircraft storage facilities at Vermont's public-use airports would only allow for 20 percent of the study airports to meet their objective by the end of the planning period.

A comparison of current hangar space at all airports to the amount of space that would be required by 2025 was completed according to the forecasted increase in aircraft demand. This comparison defines the deficiency of hangar space at airports that are recommended for the construction of either T-hangars or conventional hangars as the demand increases in order to meet the 100 percent future target for this objective. This information is summarized in **Table 7-12**.

**Table 7-12**  
**Future Covered Storage Objective Analysis**

Airport Name	Associated City	Current Storage (sq. ft)	Future Storage Objective (sq. ft.)	Deficiency (sq. ft.)
<b>National Service</b>				
Edward F. Knapp State	Barre/Montpelier	40,515	70,350	29,835
William H. Morse State	Bennington	58,800	58,300	500
<b>Regional Service</b>				
Hartness State	Springfield	29,300	44,100	14,800
Morrisville-Stowe State	Morrisville	25,000	33,600	8,600
<b>Local Service</b>				
Caledonia County State	Lyndonville	10,000	20,700	10,700
Franklin County State	Highgate	45,000	55,800	10,800
Middlebury State	Middlebury	37,300	87,000	49,700
Newport State	Newport	15,000	18,000	3,000

Source: Wilbur Smith Associates

## FUTURE AIRCRAFT APRON ANALYSIS

Each airport's ability to meet the aircraft apron benchmark was discussed in Chapter Six. The system plan's objective for aircraft apron parking differs for each airport role. The following apron space objectives were established for the four airport roles:

- National Service Airports – 30% of based aircraft plus an additional 75% for transient aircraft



- Regional Service Airports – 30% of based aircraft plus an additional 50% for transient aircraft
- Local Service Airports – 40% of based aircraft plus an additional 25% for transient aircraft
- Specialty Service Airports – Maintain existing facilities

The ability of the system airports to meet this particular facility objective, both now and by the last forecast milestone (2025) is shown in **Table 7-13**. Aircraft apron needs were determined by examining each airport's current and future level of based aircraft, then applying their respective objective discussed in Chapter Five. Currently, 100 percent of system airports meet their apron objective. Applying the forecasted based aircraft and forecasted operations for each airport, it was determined that all of the system airports currently have enough apron space to accommodate aircraft parking demand throughout the planning period. It should be noted that Specialty Service airports are required only to maintain their existing facilities. As mentioned in the previous chapter, the recommended amount of apron space assumes that sufficient covered storage exists at each airport to accommodate a certain percentage of based aircraft. If the recommended amount of covered storage is not in place at system airports then an excess of based aircraft will be utilizing apron space instead for storage and as a result existing apron space will not be sufficient. This is currently the case at several of the airports where there is not enough apron to accommodate the total demand. However, as additional covered storage is provided at these airports, the existing aprons shall provide sufficient space.

**Table 7-13**  
**Future Aircraft Apron Needs Analysis**

Airport Name	Associated City	Current Apron Space (sq. yd.)	Future (2025) Apron Space Objective (sq. yd.)	Deficiency
<b>National Service</b>				
Burlington International	Burlington	65,478	22,000	Adequate
Edward F. Knapp State	Barre/Montpelier	16,000	14,100	Adequate
Rutland State	Rutland	37,000	13,900	Adequate
William H. Morse State	Bennington	12,500	12,000	Adequate
<b>Regional Service</b>				
Hartness State	Springfield	25,000	4,900	Adequate
Morrisville-Stowe State	Morrisville	8,200	5,000	Adequate
<b>Local Service</b>				
Caledonia County State	Lyndonville	6,900	3,100	Adequate
Franklin County State	Highgate	19,000	8,900	Adequate
Middlebury State	Middlebury	15,000	8,600	Adequate
Newport State	Newport	15,000	2,800	Adequate

Source: Wilbur Smith Associates

# Vermont Airport System and Policy Plan

## FUTURE TERMINAL/ADMINISTRATION BUILDING ANALYSIS

Seventy percent of the airports in Vermont currently meet the study's terminal/administrative building objectives. It is targeted by the system plan that 100 percent of the system airports should meet this objective in the future. As determined from the inventory process, the following airports are in need of expansion projects to meet their terminal/administrative building objectives:

- **National Service Airports – At a minimum, 2,500 square feet of public space**
  - William H. Morse State
- **Regional Service Airports – At a minimum, 2,500 square feet of public space**
  - Hartness State
  - Morrisville-Stowe State

Airports that don't meet the objective for public space in their GA terminal/administration building are shown in **Table 7-14**. Their deficiencies are considered to be potential expansion projects.

**Table 7-14**  
**Future Terminal/Administration Building Objective Analysis**

Airport Name	Associated City	Current Terminal (sq. ft.)	Terminal Objective (sq. ft.)	Deficiency
<b>National Service</b>				
William H. Morse State	Bennington	2,000	2,500 sq. ft.	500 sq. ft.
<b>Regional Service</b>				
Hartness State	Springfield	2,000	2,500 sq. ft.	500 sq. ft.
Morrisville-Stowe State	Morrisville	1,300		1,200 sq. ft.

Source: Wilbur Smith Associates

## FUTURE FENCING ANALYSIS

Fencing was recommended at all service levels of airports in Vermont in Chapter Five. The minimum objective was to fence the operations area at a minimum for the Local and Specialty Service roles, with the entire airport perimeter desirable for all airports. Currently, only 12 percent of the study airports meet their recommended objective. The following fencing objectives were recommended:

- National Service Airports – Entire Airport
- Regional Service Airports – Entire Airport
- Local Service Airports – Operations Area at Minimum
- Specialty Service Airports – Operations Area at Minimum



# Vermont Airport System and Policy Plan

These objectives are noted to be adequate throughout the planning period. Table 7-15 shows the current fencing at study airports that do not meet their objective and future recommendations.

**Table 7-15**  
**Future Fencing Objective Analysis**

Airport Name	Associated City	Current Fencing	Fencing Objective
<b>National Service</b>			
Edward F. Knapp State	Barre/Montpelier	Partial	Extend Around Entire Airport
William H. Morse State	Bennington	Partial	
<b>Regional Service</b>			
Hartness State	Springfield	Partial	Extend Around Entire Airport
Morrisville-Stowe State	Morrisville	Partial Terminal	
<b>Local Service</b>			
Caledonia County State	Lyndonville	Partial	Secure Operations Area at Minimum
Franklin County State	Highgate	Partial	
Middlebury State	Middlebury	Partial	
Newport State	Newport	Partial	
<b>Specialty Service</b>			
Basin Harbor	Vergennes	None	Secure Operations Area at Minimum
Fair Haven Municipal	Fair Haven	None	
John H. Boylan State	Island Pond	None	
Mount Snow	West Dover	None	
Post Mills	Post Mills	None	
Shelburne	Shelburne	None	
Warren-Sugarbush	Warren	None	

Source: Wilbur Smith Associates

## FUTURE AUTO PARKING ANALYSIS

Chapter Six showed that 60 percent of system airports were meeting their current auto parking objective. When future demand is taken into consideration, current parking facilities at Vermont airports are only adequate to accommodate future demand at 50 percent of the system airports. The following list shows airports that do not meet their future objective for auto parking associated with their service role:

- **National Service Airports – 1 space for each based aircraft plus 50% for employees/visitors**
  - Burlington International
  - Edward F. Knapp State
  - Rutland State
  - William H. Morse State

- **Local Service Airports** – 1 space for each based aircraft plus 25% for employees/visitors
  - Caledonia County State
  - Franklin County State
  - Middlebury State

**Table 7-16** shows the airports that do not have enough automobile parking to accommodate future demand. As based aircraft increase in the Vermont Airport System, so will the demand for auto parking at these facilities. Table 7-16 lists the parking deficiencies at the airports that will require auto parking expansion projects in order for the system to meet the 100 percent future target for this benchmark as based aircraft increase.

**Table 7-16**  
**Future Auto Parking Objective Analysis**

Airport Name	Associated City	Current Auto Parking Spaces	Future Auto Parking Spaces Objective (2025)	Deficiency
<b>National Service</b>				
Burlington International	Burlington	100	105	5
Edward F. Knapp State	Barre/Montpelier	50	101	51
Rutland State	Rutland	100	69	31
William H. Morse State	Bennington	50	84	34
<b>Local Service</b>				
Caledonia County State	Lyndonville	15	29	14
Franklin County State	Highgate	50	78	28
Middlebury State	Middlebury	72	73	1

Source: Wilbur Smith Associates

## FUTURE FUEL ANALYSIS

Thirty-five percent of the airports in Vermont currently do not meet the study's current fuel objectives. In order to meet the established study targets for this facility and service objective, 100 percent of all airports should meet their role's recommended fuel objective. Listed below are the fuel objectives for each service role and the airports that are deficient:

- **Regional Service Airports** – Self Service AvGas and Jet A
  - Hartness State
- **Specialty Service Airports** – AvGas; Jet A as needed
  - Basin Harbor
  - Fair Haven Municipal
  - John H. Boylan State
  - Post Mills



- Shelburne

Table 7-17 lists the airports by roles that do not currently meet their fuel objective, in addition to which type of projects or facilities are recommended in order to bring the system to 100 percent future compliance for this objective.

**Table 7-17**  
**Future Fuel Needs Objective Analysis**

Airport Name	Associated City	Current Fueling Facilities	Fueling Facility Objective Needs
<b>Regional Service</b>			
Hartness State	Springfield	Self Serve AvGas, JetA	Self Serve Jet A Capabilities
<b>Specialty Service</b>			
Basin Harbor	Vergennes	None	AvGas
Fair Haven Municipal	Fair Haven	None	AvGas
John H. Boylan State	Island Pond	None	AvGas
Post Mills	Post Mills	None	AvGas
Shelburne	Shelburne	MoGas	AvGas

Source: Wilbur Smith Associates

## FUTURE FBO ANALYSIS

Systemwide, 76 percent of Vermont's public-use airports currently meet their Fixed Base Operator (FBO) objective. For the Vermont Airport System Plan, a full service FBO was recommended to be in place at National and Regional Service airports, while only a limited service FBO was recommended for the Local and Specialty Service roles. The following airports do not currently meet the recommended FBO services for their role:

- **Specialty Service Airports – Limited Service**
  - Basin Harbor
  - Fair Haven Municipal
  - John H. Boylan State
  - Post Mills

All of the National, Regional, and Local Service airports currently meet their FBO objective. Aviation activity at the Specialty Service airports can be very limited at times, and often does not warrant the demand for a Fixed Based Operator. While provision of FBO services is shown as an objective, each Specialty Service airport should examine its needs for these services and make an individual determination on the ability of the airport to support these services.



## FUTURE AIRCRAFT MAINTENANCE ANALYSIS

Aircraft maintenance and repair is often an important service a healthy airport system can provide to its users. Currently, 90 percent of airports in Vermont report having on-site either full or limited service maintenance available dependant upon the airport's service role. There is no specific objective for Specialty Service airports to provide on-site aircraft maintenance, although any future additions would only benefit the system. It is recommended that 100 percent of the airports in the National, Regional and Local Service categories meet this objective.

Caledonia County State is the only airport that does not offer some level of maintenance. It is recommended that Caledonia County State Airport provide limited service maintenance in the future, either through their FBO or a third party.

**Table 7-18** shows which airports are recommended to increase the type of maintenance services provided in order to meet the 100 percent target for this objective.

**Table 7-18**  
**Future Maintenance Objective Analysis**

Airport Name	Associated City	Current Maintenance	Objective
Local Service			
Caledonia County State	Lyndonville	None Provided	Limited Service Maintenance

Source: Wilbur Smith Associates

## FUTURE GROUND TRANSPORTATION ANALYSIS

By having rental cars or loaner cars available, airports help to provide another mode of transportation for their users. Currently, 70 percent of system airports meet this benchmark. It is not an objective for Specialty Service airports to provide automobile transportation. It is desirable that at a minimum, 80 percent of airports meet this objective in the future, with a desire that all airports provide this service in the future.

**Table 7-19** depicts which airports do not meet their ground transportation objective.

Table 7-19  
Future Ground Transportation Objective Analysis

Airport Name	Associated City	Current Ground Transportation	Ground Transportation Objective
Regional Service			
Hartness State	Springfield	None	Addition of On-Site or Off-Airport Rental Car Services
Local Service			
Caledonia County State	Lyndonville	Off-Airport Rental	Provide a Loaner Car
Middlebury State	Middlebury	Off-Airport Rental	Provide a Loaner Car

Source: Wilbur Smith Associates

**BENCHMARK: PERCENT OF SYSTEM AIRPORTS IN EACH ROLE HAVING A PCI OF “GOOD” OR BETTER**

Pavement preservation is essential throughout the system in order to maintain the functionality of the airports and to minimize long-term pavement reconstruction costs. The Vermont Airport System Plan has identified a pavement condition of “good” as reported by the FAA 5010 as an objective for all paved primary runways and currently 75 percent of all system airports meet this benchmark. An 85 percent future target for this service objective was established for airports to have adequate PCI ratings, with 100 percent compliance desirable. In order to bring the three airports that have runways rated by the FAA 5010 as less than “good,” projects such as runway overlays or minor rehabilitations are recommended dependant upon the actual physical condition of each runway. The following airports do not currently meet the PCI objective:

- **National Service Airports**
  - William H. Morse State
- **Regional Service Airports**
  - Morrisville-Stowe State
- **Specialty Service Airports**
  - Mount Snow

It should be noted that airports that have grass strips were not included in this objective. Table 7-20 lists the airports that do not meet this objective and are recommended for runway projects.



Table 7-20  
Future Pavement Condition Objective Analysis

Airport Name	Associated City	Current PCI	Recommendation
National Service			
William H. Morse State	Bennington	Fair	Overlay or Rehab
Regional Service			
Morrisville-Stowe State	Morrisville	Fair	Overlay or Rehab
Specialty Service			
Mount Snow	West Dover	Fair	Overlay or Rehab

Source: Wilbur Smith Associates

Mount Snow is a privately owned airport, which places the costs of projects such as pavement maintenance and runway overlays directly on the owner/operator. These types of projects at privately owned airports are not eligible for FAA funding. As a result, it is recommended that William H. Morse State and Morrisville-Stowe State improve their PCI condition at a minimum, in order to meet the 85 percent future target for this objective. Both of these airports have been recommended in an earlier section to extend and thus strengthen their runway. If these recommended projects are implemented, the runway PCIs would be increased to a level that would meet and or exceed the “good” rating. In addition, other projects such as runway maintenance will be required at other airports throughout the planning period in order to keep the system in compliance with the 85 percent target for this objective.

VTrans has implemented an extensive pavement management program to ensure the viability of its airport pavements at the State-owned airports. In addition to this program, publicly owned airports that accept FAA funding are required to have a pavement management program. While the issue of pavement condition is a long-term concern, there are programs in place to monitor pavement conditions and hopefully implement short and long-term projects to maintain the State’s airport pavements.

## **BENCHMARK: PERCENT OF SYSTEM AIRPORTS IN EACH ROLE HAVING AN AIRPORT LAYOUT PLAN (ALP) UPDATED IN THE LAST 10 YEARS**

The Vermont Airport System Plan recommends that all system airports have current planning documents. It is recommended that each airport’s airport layout plan (ALP) be updated every 10 years in order to stay current and up to date on system needs and desired projects. Currently, only a few airports in the Specialty Service role do not have a current ALP. Three of these airports have grass strips and do not warrant the need for an ALP. It is recommended that all National, Regional, and Local Service airports update their ALPs every 10 years. Several airports are currently in the process of updating their plans.





Table 7-21 provides recommendations for updating ALPs for all system airports over the next 20 years. Local conditions and needs could dictate whether the recommended schedule is too aggressive or not aggressive enough. The need to update an airport master plan or ALP should be determined by the local airport owner in conjunction with VTrans and the FAA.

**Table 7-21**  
**Future ALP Update Objective Analysis**

Airport Name	Associated City	Date of Current ALP	Recommended ALP Update
<b>National Service</b>			
Burlington International	Burlington	2004	2014 & 2024
Edward F. Knapp State	Barre/Montpelier	2000	2010 & 2020
Rutland State	Rutland	2006	2016
William H. Morse State	Bennington	2005	2015 & 2025
<b>Regional Service</b>			
Hartness State	Springfield	2003	2013 & 2023
Morrisville-Stowe State	Morrisville	2005	2015 & 2025
<b>Local Service</b>			
Caledonia County State	Lyndonville	2000	2010 & 2020
Franklin County State	Highgate	2005	2015 & 2025
Middlebury State	Middlebury	2003	2013 & 2023
Newport State	Newport	1999	2009 & 2019
<b>Specialty Service</b>			
Basin Harbor	Vergennes		As Needed
Fair Haven Municipal	Fair Haven	2004	2014 & 2024
John H. Boylan State	Island Pond	2003	2013 & 2023
Mount Snow	West Dover		As Needed
Post Mills	Post Mills		As Needed
Shelburne	Shelburne		As Needed
Warren-Sugarbush	Warren		As Needed

Source: Wilbur Smith Associates

## **BENCHMARK: PERCENT OF SYSTEM AIRPORTS IN EACH ROLE HAVING LOCAL AIRPORT-RELATED ZONING**

Ideally, all municipalities that have land use authorities and that border the existing 17 public-use airports in Vermont should take action to promote land use that is “airport friendly” by having airport-related zoning in place. Information for this benchmark was obtained from the 10 Regional Planning Commissions that are responsible for planning-related tasks around each of the airports. Currently, 53 percent of all system airports report having airport-related zoning in place either on or around airport property within their communities. It is desired that all airports meet this objective in the future for 100 percent future target compliance. Airports



recommended to work with their local municipalities to obtain airport-related zoning are shown in Table 7-22.

**Table 7-22**  
**Airports Recommended for**  
**Local Airport-Related Zoning**

Airport Name	Associated City
<b>National Service</b>	
Edward F. Knapp State	Barre/Montpelier
<b>Regional Service</b>	
Hartness State	Springfield
<b>Local Service</b>	
Newport State	Newport
<b>Specialty Service</b>	
Basin Harbor	Vergennes
Fair Haven Municipal	Fair Haven
John H. Boylan State	Island Pond
Post Mills	Post Mills
Shelburne	Shelburne

Source: Wilbur Smith Associates

As mentioned in the last chapter, some municipalities may have adopted zoning that is “airport friendly” and promotes safety around their associated airports, although due to variances or conditional uses, actual land coverage around the airports may not be compatible or consistent with the adopted zoning.

**BENCHMARK: PERCENT OF SYSTEM AIRPORTS IN EACH ROLE THAT ARE INCLUDED IN REGIONAL LAND USE PLANS THAT INCLUDE AIRPORT-COMPATIBLE LAND USES IN THE AIRPORT ENVIRONS**

Vermont’s airports should ideally have surrounding municipalities that have adopted land use controls to make the land use in the airport environs compatible with the airport and its operation. Within the context of the system evaluation presented in the previous chapter, the current compliance rating for this benchmark was based on data supplied by the Regional Planning Commissions (RPCs). According to the RPC’s reported data, 76 percent of all system airports have municipalities that have adopted compatible land use guidelines and recognize the airports in the comprehensive plans and in some instances transportation plans. The future target is to have 100 percent of the municipalities in Vermont that host airports adopt compatible land use guidelines for their airports. Ideally, all system airports should be recognized in their local or regional comprehensive plans. Table 7-23 shows which airports are recommended to work with the regional and local planning authorities to adopt compatible land uses around the airport environs.



**Table 7-23**  
**Airports Recommended to be Included in**  
**Regional Land Use Plans with**  
**Compatible Land Uses in the Airport Environs**

Airport Name	Associated City
Specialty Service	
Basin Harbor	Vergennes
Mount Snow	West Dover
Post Mills	Post Mills
Shelburne	Shelburne

Source: Wilbur Smith Associates

## PERFORMANCE MEASURE: SAFETY AND SECURITY

A third goal established by the Vermont Airport System Plan was to provide a safe and secure system of airports. As part of the safety and security performance measure, the number of system airports that met objectives related to addressing safety and security concerns was to be determined. The following benchmarks were established:

- Percent of system airports in each role that meet applicable FAA airport design standards
- Percent of system airports in each role that meet applicable VTrans or TSA security-related recommendations

As mentioned in the previous chapter, VTrans is currently undergoing an evaluation of the safety and security of the public-use airports in Vermont. Once the current compliance with FAA airport design standards of all public-use airports is determined, it is recommended that all airports that are deficient in meeting any of the standards be developed as to promote a safe airport environment. Conclusively, it is recommended that all system airports be 100 percent compliant with any and all objectives set forth by VTrans and by those of the TSA related to airport security.

## DEVELOPMENT COSTS

Vermont's public-use airports have been analyzed for current and future compliance with the recommended facility and service objectives for each of the four service roles. Previous sections of the chapter have identified the deficiencies of airports that do not meet the various facility and service objectives. Projects to address these deficiencies have been identified for each airport. In addition, to portray the total



needs of Vermont's airport system, projects from airport master plans and capital improvement plans have been included in the project listing for use by VTrans.

It is important to note that the recommendations and costs contained in this chapter are a result of a comprehensive statewide analysis, and are not intended to replace airport-specific recommendations that may result from more detailed airport master planning. The recommendations contained in this chapter are intended to provide VTrans and the State of Vermont with guidance on the types of projects that could be implemented to improve upon the deficiencies and bring the 17 public-use airports into compliance with the facility and service objectives that were developed in earlier chapters of the Vermont Airport System Plan.

The recommended projects are subject to detailed review in an airport master plan. Furthermore, any recommended projects involving federal funding could be subject to an environmental assessment (EA) and possibly an environmental impact statement (EIS). Typically, projects involving the addition or modifications to runways and taxiways yield an EA, and if required by the FAA, an EIS. As a result, these will be included in the overall recommended projects where appropriate.

Several of the recommended projects for Vermont's system airports have already been identified and planned for in specific master plans and/or have been included in VTrans Five-year Capital Improvement Project (CIP) list for its airports. These specific projects are noted in the individual project lists for each airport. It should be noted that in most cases the recommendations of the System Plan may not be exactly that of a previous master plan or the current CIP, but are similar regarding the type of project, whether it be a runway extension or providing covered storage.

With development of a capital plan for each of Vermont's airports, an analysis of the system's financial needs can be accomplished. (Individual capital plans for each airport are presented in **Appendix E**.) **Table 7-24** presents a summary of the total projected costs of the projects from both the System Plan and airport master plan/capital improvement plans, with an estimate of the funding eligibility of the total need by federal, State, and local resources. **Exhibit 7-1** shows that of the total capital needs identified in this study (\$178.8 million), approximately 85 percent of the needs are eligible for federal funding, nearly 11 percent would need to be funded by the State, and the remaining 4 percent would come from local resources.

When the capital needs are evaluated by system role, it is clear that the majority of the project needs are at the National Service airports with nearly 83 percent of the total costs (see **Exhibit 7-2**). With only two airports, the Regional Service projects comprise only 5 percent, while the four Local Service airports comprise 8 percent of the total costs. While the Specialty Service airports include eight airports, their costs



# Vermont Airport System and Policy Plan

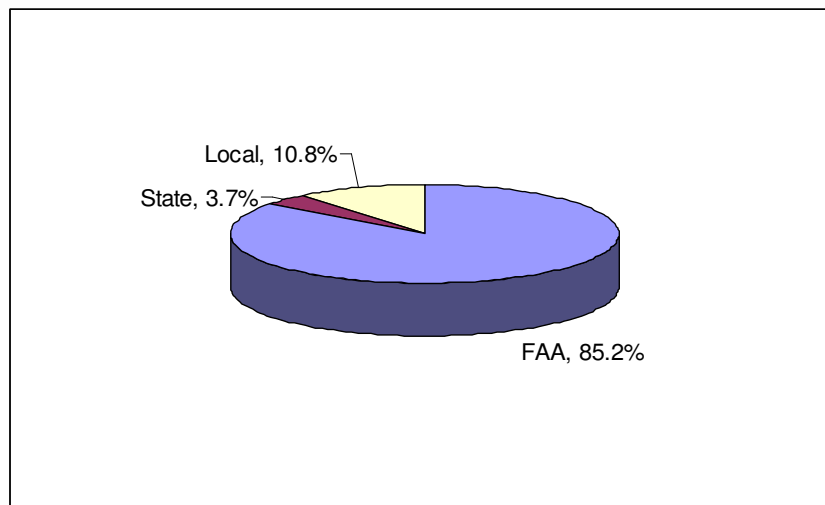
represent only 4 percent of the total due to their limited activities and need for projects.

**Table 7-24**  
**Total Systemwide Capital Needs**

Classification/ Airport	Funding Source			
	Total	FAA	State	Local
<b>National Service</b>				
Burlington International	\$120,266,000	\$100,545,150	\$3,175,110	\$16,545,740
Edward F. Knapp State	\$7,475,425	\$7,054,154	\$421,271	\$0
Rutland State	\$10,669,750	\$10,136,263	\$533,488	\$0
William H. Morse State*	\$9,030,500	\$8,578,975	\$451,525	\$0
<b>Regional Service</b>				
Hartness State	\$3,281,500	\$3,117,425	\$164,075	\$0
Morrisville-Stowe State	\$6,296,813	\$5,981,972	\$314,841	\$0
<b>Local Service</b>				
Caledonia County State	\$5,179,000	\$4,540,050	\$438,950	\$0
Franklin County State	\$3,118,000	\$2,962,100	\$155,900	\$0
Middlebury State	\$3,641,000	\$3,458,950	\$182,050	\$0
Newport State	\$2,840,000	\$2,413,000	\$427,000	\$0
<b>Specialty Service</b>				
Basin Harbor	\$116,000	\$0	\$0	\$116,000
Fair Haven Municipal	\$3,631,000	\$3,449,450	\$108,930	\$72,620
John H. Boylan State	\$578,500	\$0	\$228,500	\$0
Mount Snow	\$1,796,000	\$0	\$0	\$1,796,000
Post Mills	\$116,000	\$0	\$0	\$116,000
Shelburne	\$115,000	\$0	\$0	\$115,000
Warren-Sugarbush	\$634,375	\$0	\$0	\$634,375
<b>Total Costs</b>	<b>\$178,784,863</b>	<b>\$152,237,488</b>	<b>\$6,601,639</b>	<b>\$19,395,735</b>

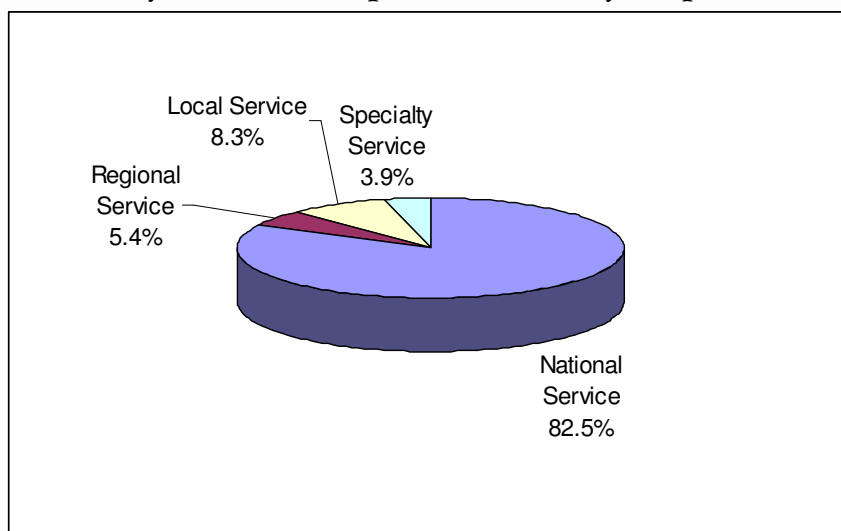
Source: VTrans, Airport personnel, Wilbur Smith Associates

**Exhibit 7-1**  
**Total Systemwide Capital Needs – By Eligible Funding Source**



Source: VTrans, Airport personnel, Wilbur Smith Associates

**Exhibit 7-2**  
**Total Systemwide Capital Needs – By Airport Role**



Source: VTrans, Airport personnel, Wilbur Smith Associates

When examined at the project level by airport role, the type of projects needed at the various airports indicates where the greatest needs are. **Table 7-25** shows the projects needed at the National Service airports by project type. As shown, land acquisition, taxiway development, and storage account for 63 percent of the total project needs at National Service airports as identified through the System Plan and airport master plans/capital improvement plans. In total, approximately \$147.4 million is needed to complete the projects identified for the three National Service airports over the planning period.

**Table 7-25**  
**National Service Projects by Type**

Type of Project	Total Need	% of Total Need
Parking	\$2,445,000	2%
Storage	\$26,718,425	18%
Obstruction Removal	\$6,150,000	4%
Land Acquisition	\$34,500,000	23%
Runway	\$11,502,500	8%
Taxiway	\$32,241,250	22%
Apron	\$18,100,000	12%
Terminal Area	\$9,249,500	6%
Lighting/NAVAIDS/Weather/Ground Communications	\$4,185,000	3%
Planning	\$1,850,000	1%
Equipment/Fencing/Fuel	\$500,000	0%
<b>TOTAL COST</b>	<b>\$147,441,675</b>	<b>100%</b>

Source: VTrans, Airport personnel, Wilbur Smith Associates

Comparatively, as shown in **Table 7-26**, at the Regional Service airports the majority of the costs are in the runway, taxiway and storage categories, which account for 75 percent of the total costs for these two airports. The two airports in the Regional Service category have projects totaling approximately \$9.6 million during the planning period.

**Table 7-26**  
**Regional Service Projects by Type**

Type of Project	Total Need	% of Total Need
Parking	\$0	0%
Storage	\$1,287,000	13%
Obstruction Removal	\$430,000	4%
Land Acquisition	\$150,000	2%
Runway	\$3,191,313	33%
Taxiway	\$2,812,500	29%
Apron	\$0	0%
Terminal Area	\$212,500	2%
Lighting/NAVAIDS/Weather/Ground Communications	\$225,000	2%
Planning	\$780,000	8%
Equipment/Fencing/Fuel	\$490,000	5%
<b>TOTAL COST</b>	<b>\$9,578,313</b>	<b>100%</b>

Source: VTrans, Airport personnel, Wilbur Smith Associates

The four airports in the Local Service category were noted to need approximately \$14.8 million in projects (see **Table 7-27**). Of this total need, a great majority falls in the runway category at 63 percent. Besides runway projects, storage and planning were identified as necessary projects at the Local Service airports.



**Table 7-27**  
**Local Service Projects by Type**

Type of Project	Total Need	% of Total Need
Parking	\$43,000	0%
Storage	\$1,750,000	12%
Obstruction Removal	\$0	0%
Land Acquisition	\$0	0%
Runway	\$9,245,000	63%
Taxiway	\$1,000,000	7%
Apron	\$0	0%
Terminal Area	\$0	0%
Lighting/NAVAIDS/Weather/Ground Communications	\$930,000	6%
Planning	\$1,410,000	10%
Equipment/Fencing/Fuel	\$400,000	3%
<b>TOTAL COST</b>	<b>\$14,778,000</b>	<b>100%</b>

Source: VTrans, Airport personnel, Wilbur Smith Associates

The Specialty Service airports consist of seven airports that serve varying roles in Vermont's airport system. Most of the airports in the Specialty Service category are privately owned and are not currently eligible to apply for federal or State funding to meet their projected needs, although one is State-owned and one is municipally owned. Of the nearly \$7 million in projects at the Specialty Service airports, 84 percent is needed for runway projects including a new paved runway and an overlay of another runway. It is important to note again that many of these projects must be funded locally, either through the municipality or the private owner.

**Table 7-28**  
**Specialty Service Projects by Type**

Type of Project	Total Need	% of Total Need
Parking	\$0	0%
Storage	\$0	0%
Obstruction Removal	\$0	0%
Land Acquisition	\$0	0%
Runway	\$5,869,375	84%
Taxiway	\$150,000	2%
Apron	\$0	0%
Terminal Area	\$0	0%
Lighting/NAVAIDS/Weather/Ground Communications	\$40,000	1%
Planning	\$440,000	6%
Equipment/Fencing/Fuel	\$487,500	7%
<b>TOTAL COST</b>	<b>\$6,986,875</b>	<b>100%</b>

Source: VTrans, Airport personnel, Wilbur Smith Associates

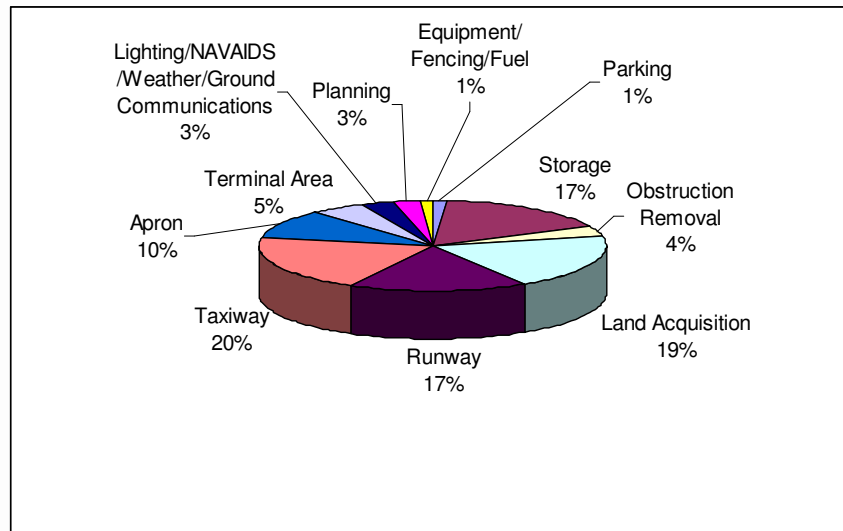


# Vermont Airport System and Policy Plan

When the projects are examined at the Statewide level (see **Exhibit 7-3**), the needs are more evenly divided between taxiway (20 percent), land acquisition (19 percent), runway (17 percent), and storage (17 percent).

The analysis of the State's capital needs from this statewide perspective should be considered in future funding scenarios in which priorities and programming are established.

**Exhibit 7-3**  
**Statewide Projects by Type**



Source: VTrans, Airport personnel, Wilbur Smith Associates

## SYSTEMWIDE RECOMMENDATIONS

The recommendations developed for the Vermont Airport System are a result of a comprehensive analysis of each system airport's needs based on the recommendations of the System Plan. While each airport's deficiencies and recommendations differ, there are several recommendations on a systemwide level that are essential for the longevity and development of all 17 of Vermont's public-use airports. These recommendations should be carried out continuously as needed throughout the 20-year planning period. The systemwide recommendations include updating and maintaining the following existing VTrans studies and systems:

- Airport Information Management System (AIMS)
- Airport Pavement Management System (APMS)
- Economic Impact Analysis

In order for an airport system to run efficiently and be developed properly, it is critical that the existing infrastructure is maintained and expanded upon. In order to do so, VTrans currently uses an Airport Information Management System (AIMS) to

keep track of airport data including facilities, activity, and grants. An extensive update of this system has been developed, with the new system referred to as Airport IQ. The Airport IQ system utilizes a web-based platform to provide a basis for maintaining and updating airport information. VTrans is currently examining funding options for the Airport IQ system. If and when implemented, this system will provide a means of monitoring the system's performance as identified in the Vermont Airport System Plan. Each of the performance measures developed in this analysis can be included in the Airport IQ system such that when projects or conditions change at Vermont's airports, the performance measure can be updated. For example, if a runway extension project is completed, the airport's runway length can be changed and the ability of that airport and the system to meet the target performance measures can be calculated. This provides a method for determining how investments in Vermont's airport system are leading to improved performance of the overall system.

Pavement at an airport is a valuable part of infrastructure as it relates to runways, taxiways, and the aircraft apron. In order to maintain good pavement conditions and extend the useful life of existing infrastructure, the existing Airport Pavement Management System (APMS) is recommended to be maintained and monitored throughout and beyond the 20-year planning period. The current VTrans APMS examines only the State-owned airports, while the other publicly owned airports are required to maintain their own programs. Pavement management projects are included in the VTrans 5-Year CIP for the State-owned airports such that these projects are programmed to ensure the viability of these pavements. The privately owned airports are not required to evaluate their pavement conditions, nor does VTrans currently assist in this evaluation or monitoring process.

The final recommendation on a system wide level is to update the Economic Impact Study of Vermont's Public-use Airports. This study was completed in April of 2003, and summarizes the significant economic value that aviation activity conducted at Vermont's public-use facilities brings to the State. Economic Impact Studies help to educate the State's residents, businesses, and government leaders on how valuable the investment and maintenance of Vermont's 17 public-use airports are and the positive impacts that aviation brings to the State. It is recommended that the Economic Impact Study be updated at regular intervals, typically every five to seven years.

